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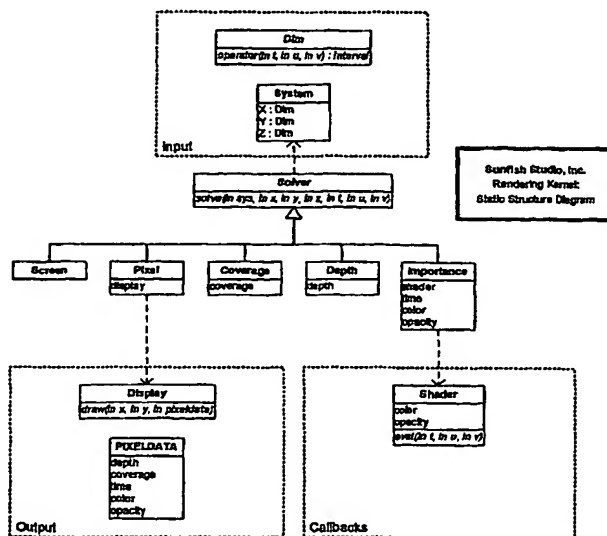
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- (71) Applicant (for all designated States except US): SUN-FISH STUDIO, INC. [US/US]; 5364 Shoreview Avenue, Minneapolis, MN 55417 (US).
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[Continued on next page]

(54) Title: VISIBLE SURFACE DETERMINATION SYSTEM & METHODOLOGY IN COMPUTER GRAPHICS USING INTERVAL ANALYSIS



(57) Abstract: A system is provided for visible surface determination in furtherance of photorealistic rendering in a computer graphics environment. The system includes a scene database and a processor, visual characteristics of objects of an image frame of a scene of the scene database are delimited as geometric primitive. The processor, for executing an interval analysis, to a user degree of certainty, accurately and deterministically ascertains a visible solution set of an area not exceeding a pixel dimension for a pixel of an array of pixels that form said image frame.

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Declarations under Rule 4.17:

- as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii)) for the following designations AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW, ARIPO patent (BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG)
- as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii)) for the following designations AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM,

DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW, ARIPO patent (BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG)

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INTERNATIONAL SEARCH REPORT

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A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : G06T 15/00
US CL : 345/419, 421, 422, 423, 424, 426, 427, 428, 441, 552, 581

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

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Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
EAST, WEST, ACM

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 5,600,763 A (GREENE et al.) 04 June 1997 (04.06.1997), col. 3, lines 36-40; col. 4, lines 38-52; col. 12, lines 29-62.	1-30
Y	US 6,707,452 B1 (VEACH) 16 March 2004 (16.03.2004), col. 2, lines 50-67; col. 5, lines 7-22; lines 42-56; col. 7, lines 15-27, lines 48-57; col. 8, lines 48-55; col. 9, line 66 through col. 10, line 5; col. 11, lines 10-18.	1-18, 20-30
Y	US 6,342,886 B1 (PFISTER et al.) 29 January 2002 (29.01.2002), col. 5, line 52, line 62 through col. 6, line 13.	8, 19



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"&"

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